International Journal of Medicine Research
ISSN: 2455-7404; Impact Factor: RJIF 5.42
www.medicinesjournal.com
Volume 1; Issue 2; May 2016; Page No. 101-102

Early feeding in tracheo esophageal fistula repair: Newer trends in post-operative care

[*1] Ghosh Soumyodhriti, [2] Mujalde Vikram Singh, [3] Shukla Ramendra, [4] Chaturvedi Vinita, [5] Barkondaj Bikramjit

[1, 2, 3] Senior Resident, Department of Pediatric Surgery, SMS Medical College, Jaipur, Rajasthan, India
[4] Professor, Department of Pediatric Surgery, SMS Medical College, Jaipur, Rajasthan, India
[5] Junior Resident, Department of Pharmacology, IPGMER, Kolkata, India

Abstract
Purpose: Proper surgical care with advances in neonatal intensive care support has largely improved the survival of neonates with esophageal atresia and trachea esophageal fistula. The surgery has evolved from staged gastrostomy to the present day single stage primary repair. In our center, feeding has been conventionally initiated after a contrast esophagogram done at the seventh day post repair. The current study tried to assess the benefits and risks of initiation of early feeding in these patients by placement of a Tran's anastomotic feeding tube during the repair.
Methods: Eight out of twenty patients had a trans anastomotic feeding tube feed inserted during trachea esophageal fistula repair and were followed up for different outcomes.
Results: There was no significant differences in the rates of complications between the two sets of patients. However the incidence of central line infections was lesser in the patients on early feed.
Conclusion: The authors conclude that early tube feeding is safe and does not increase risks of anastomotic leaks. It also reduces the need of total parenteral nutrition bringing down the costs of procedure in developing nations.

Keywords: Tracheoesophageal fistula; esophageal atresia; transanastomotic feeding

1. Introduction

Esophageal atresia, with or without tracheoesophageal fistula, is a common congenital disorder that should be considered in the differential diagnosis of a neonate who develops feeding difficulties and respiratory distress in the first few days of life [1, 2]. Esophageal atresia is often associated with other congenital anomalies, most commonly cardiac abnormalities such as ventricular septal defect, patent ductus arteriosus or tetralogy of Fallot [3, 4]. Prompt recognition, clinical management to prevent aspiration, referral to an appropriate tertiary care center and better intensive care set up have resulted in significant improvement in the rates of morbidity and mortality in these infants over the past 50 years [1, 5].

Surgical repair has evolved from staged gastrostomy to a primary esophageal repair with ligation of fistula [1, 4, 6].The type of fistula also mandates the nature of repair to be performed. In type C fistula, the procedure involves ligation of fistula with identification of both the pouches. This is followed by a non-tension primary anastomosis. We have performed the same procedure in twenty patients with addition of transanastomotic tube in eight of them.

2. Materials and methods

Twenty consecutive cases of trachea esophageal fistula repair were included. The diagnosis was made with the help of plain radiographs after insertion of red rubber catheter. Only patients of the most common type of trachea esophageal fistula (Type C) were included.

The patients underwent right posterolateral thoracotomy with ligation of the fistula and primary esophageal anastomosis. In eight patients a 6 Fr infant feeding tube was passed into the esophagus during performance of the anastomosis. The trans anastomotic tube was kept in place by a suture fixation to the nares. Twelve patients in the control group were kept on total parenteral nutrition till the seventh day post-surgery until a normal contrast esophagogram was obtained. The experimental group patients were started on trans anastomotic tube feed with expressed breast milk on the third day post-surgery. Both the groups were followed post operatively for immediate complications and survival.

3. Results

The post-operative complications of surgical site infection (SSI), sepsis, anastomotic leak, pneumonia, central line infection and duration of total parenteral nutrition were studied in the two groups. The mean gestational age and birth weights were not statistically different between the groups. No mortality was noted. Statistical difference between the two is mentioned in the table.

The duration of total parenteral nutrition varied between the two groups. The mean duration was 2 days in the experimental and 9 days in the control group.

4. Discussion

Congenital trachea esophageal fistula is a not so rare neonatal surgical emergency. The patients are generally brought in the very first day of life. The condition itself is not life threatening if not associated with other anomalies. Esophageal atresia is often associated with other congenital anomalies, most commonly cardiac abnormalities such as ventricular septal defect, patent ductus arteriosus or tetralogy of Fallot [3, 4].

Congenital trachea esophageal fistula has been classified according to different systems. Type C in which the upper esophageal pouch is blind and the lower esophagus

communicates to the trachea by the fistula is the commonest variant. This is the only type included in our study.

The chief cause of mortality in Tracheoesophageal fistula patients has been related to the post operative care [7]. The conventional delayed onset of enteral feed with enhanced disposition to wound infection leads to sepsis and mortality [7, 8]. In our tertiary level pediatric surgery center, it is traditional to start oral feed only after a proper contrast esophagogram is obtained. The patients are kept on total parenteral nutrition via central venous catheters till seventh postoperative day. In the present study, we have attempted to introduce enteral feeding via trans anastomotic feeding tube and assess the outcomes in terms of complications. The duration of TPN use has also been noted which is indirectly related to the cost of surgery.

Trans anastomotic tubes have been used in European countries with moderate success [4, 9]. Its goal has been to introduce early feed, reduce TPN and central line sepsis [4, 9, 10].

Interestingly, in our study, there have not been significant differences between the control and experimental group with respect to surgical site infections, sepsis, anastomotic leaks and pneumonia.

However, patients in the control group had a higher incidence of central catheter site infection. The duration of putting the baby on total parenteral nutrition was two days for the tube fed babies as compared to nine days for the babies in the control group. The cost of the surgery was higher with increased TPN use. We conclude that trans anastomotic feeding tubes stand as a favorable option during primary repair of tracheo esophageal fistula with no significant rise in complication rates. It also offers better cost effectiveness in developing nations reducing use of total parenteral nutrition.

5. Conclusion

Where the gut is there, use it. The simple dictum has proven beneficial to numerous surgeries and this is no exception. Tube feed improves gut motility and provides improved nutritional support to the babies. The method if implicated will go a long way in improving mortality rates and bring down the surgical costs in developing nations.

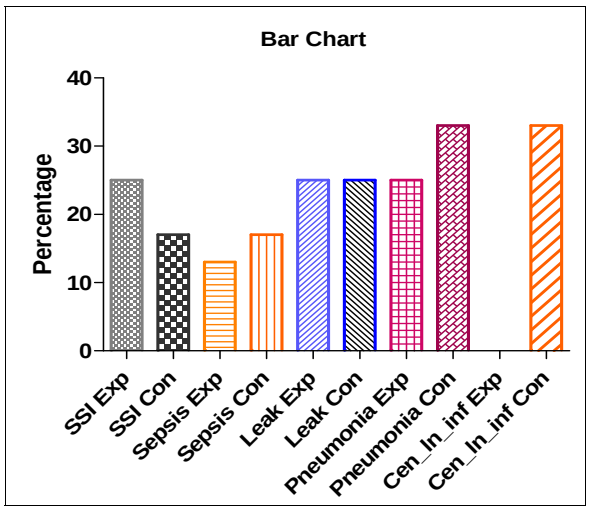

Fig 1

Key 1: Bar diagrammatic representation of complications in experimental and control group (as percentage).

Complications	Experimental n=8(40%)	Control n=12(60%)	p value
SSI	2 (25%)	2 (17%)	1.00 (ns)
Sepsis	1 (13%)	2 (17%)	1.00 (ns)
Leak	2 (25%)	3 (25%)	1.00 (ns)
Pneumonia	2 (25%)	4 (33%)	1.00 (ns)
Central line inf.	0	4 (33%)	0.116 (ns)

Key 2: Table depicting the p values of complications in respective experimental and control groups.

Key

Key 1: Bar diagrammatic representation of complications in experimental and control group (as percentage).

Key 2: Bar diagrammatic representation of complications in experimental and control group (as percentage). Table depicting the p values of complications in respective experimental and control groups.

6. References

1. Dwayne clark c, Esophageal atresia, trachea esophageal fistula. LCDR, MC, USNR, Cherry Point Naval Hospital, Cherry Point, North Carolina. Am Fam Physician. 1999; 59(4):910-916.
2. Moriarty KP, Jacir NN, Harris BH, Latchaw LA, Robertson FM, Crombleholme TM. Transanastomotic feeding tubes in repair of esophageal atresia. Journal of pediatric surgery. 1996; 31(1):53-5.
3. Shawyer AC, D'Souza J, Pemberton J, Flageole H. The management of postoperative reflux in congenital esophageal atresia–tracheoesophageal fistula: a systematic review. Pediatric surgery international. 2014; 1; 30(10):987-96.
4. Cano GN, Solís SG, Coto CG, Cepeda MA, Ramos AA, López SJ, *et al*. [Esophageal atresia and associated anomalies]. Anales espanoles de pediatria. 1992; 36(6):455-9.
5. Celayir AC, Erdoğan E. An infrequent cause of misdiagnosis in esophageal atresia. Journal of pediatric surgery. 2003; 38(9):1389.
6. Holland AJ, Fitzgerald DA. Oesophageal atresia and tracheo-oesophageal fistula: current management strategies and complications. Paediatric respiratory reviews. 2010; 11(2):100-7.
7. Mortell AE, Azizkhan RG. Esophageal atresia repair with thoracotomy: the Cincinnati contemporary experience. InSeminars in pediatric surgery 2009; 18(1):12-19. WB Saunders.
8. Zani A, Cobellis G, Wolinska J, Chiu PP, Pierro A. Preservation of native esophagus in infants with pure esophageal atresia has good long-term outcomes despite significant postoperative morbidity. Pediatric surgery international. 2016; 32(2):113-7.
9. Suri S, Eradi B, Chowdhary SK, Narasimhan KL, Rao KL. Early postoperative feeding and outcome in neonates. Nutrition. 2002; 18(5):380-2.
10. Ladd WE. The surgical treatment of esophageal atresia and tracheoesophageal fistulas. New England Journal of Medicine. 1944; 230(21):625-37.